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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,266	07/21/2003	Tyson McGuffin	200208594-1	7332
22879	7590	02/03/2006	EXAMINER	
HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			WHALEY, PABLO S	
			ART UNIT	PAPER NUMBER
			1631	

DATE MAILED: 02/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/624,266	MCGUFFIN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Pablo Whaley	1631	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 November 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,6,9,10,20,23 and 24 is/are pending in the application.
- 4a) Of the above claim(s) 3-5, 7, 8, 10-18 and 21-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,6,9,10,20,23 and 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                              |                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/21/03</u> . | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### *APPLICANTS' ELECTION*

Applicants' election of Group I (Claims 1-9, 19, 20, 23, and 24) and Species IA and Specie IIA, filed 11/22/2005, is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Applicants' cancellation of Claims 10-18 and 21-22 is acknowledged. Claims 3-5, 7, 8, 10-18 and 21-22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

### *CLAIMS UNDER EXAMINATION*

Claims herein under examination are Claims 1, 2, 6, 9, 10, 20, 23, and 24.

## **CLAIM REJECTIONS - 35 USC § 112, 2<sup>nd</sup> Paragraph**

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 2, 6, 9, 19, 20, 23, and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 19 recite the limitation "searching for an optimal solution to an optimization problem" in the preamble. As written, it is unclear in what way the claims achieve the purpose the preamble as there is no disclosure of an "optimization problem" in the body of the claims.

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Clarification is requested. Furthermore, as a solution to an optimization problem implies an "optimal solution" it is unclear what solution the applicant intends. Clarification is requested.

Claims 2, 6, 9, and 20 are also rejected as being dependent from Claims 1 and 19.

Claims 1, 19, 23, and 24 recite the limitation of "putatively corrected child chromosomes" (Claim 1, lines 7-8). It is unclear as to the meaning of "putatively corrected" as it is unclear exactly what is being corrected, and it is not certain that the previous step of "altering" necessarily results in a correction. Clarification is requested.

Claims 1, 19, 23, and 24 recite the step of "evaluating the fitness as the optimal solution...of...chromosomes" (Claim 1, lines 9-10). As written, it is unclear as to what exactly is being evaluated for fitness, the optimal solution or the chromosomes, and what this "fitness" evaluation results in. Clarification is requested.

Claim 6 recites the limitation of "deterministically altering...gene combinations." It is unclear in what way "deterministically" is related to the altering of gene combinations. Clarification is requested.

Claims 2 and 6 recite the limitation of "a priori knowledge of constraints on the optimization problem." It is unclear in what way "a priori knowledge of constraints" is related to the "optimization problem", as the specification does not define or describe these constraints such that one skilled in the art would know which to apply. Clarification is requested.

### **CLAIM REJECTIONS - 35 USC § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C.102 that form the basis for the rejections under this section made in this Office action: A person shall be entitled to a patent unless -

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 6, 19, 20, 23, and 24 are rejected under 35 U.S.C. 102 (b) as being anticipated by Haruki et al. (US Pat. No. 5,698,859; Issued: 12/16/1997).

Haruki et al. teach methods, computer code, and a system using a genetic algorithm and proximity correction to increase chromosome fitness (Fig. 7)(36). More specifically, Haruki et al. teach the following aspects of the instantly claimed invention:

- Generation of a set of chromosomes (Fig. 7, Steps S50-53), (39), (41), which correlates to generation of a set of child chromosomes as in instant claim 1.
- Chromosomes consisting of at least one gene (Fig. 14), as in instant claim 1.
- Checking chromosomes for mutations (57) and (Fig. 10), which correlates to examining the child chromosomes for undesirable gene combinations as in instant claim 1.
- Changing displacement codes (i.e. undesirable binary combinations) of chromosomes according to a calculated probability value (65) and (Fig. 10), which correlates to altering the undesirable gene combinations based on a priori knowledge as in instant claims 1 and 2.
- Recursive method for carrying out a consecutive improvement process wherein each of the chromosomes in the group are improved using fitness values (67), (68), and (Fig. 11), which correlates to deterministically altering undesirable gene combinations to produce a set of corrected child chromosomes as in instant claims 1 and 6.
- Fitness value of the improved group of chromosomes is calculated (69), as in instant claim 1.
- A plurality of processing nodes (95) and (Fig. 15A-D), as in instant claim 20.

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- Computer-readable code and a device for carrying out the above steps (Claim 8 and 13), as in instant claims 19, 23, and 24.

### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following prior art publications are the basis for executing this rejection:

Claims 1, 9, 19, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. (US Pat. No. 6,766,497). in view of Haruki et al. (US Pat. No. 5,698,859; Issued: 12/16/1997).

Anderson et al. teach a reproduction method and systems supporting rapid convergence of a genetic optimization process (Abstract). More specifically, Anderson et al. teach the following aspects of the instantly claimed invention:

- A set of parents (mating) or a copy of a single parent (mutation) may be used to generate a desired number of child chromosomes (Fig. 2, Step 225, Step 230), as in instant claim 1.
- one or more genes may be selected in the child chromosome for subsequent mutation (Fig. 7, Step 710), which correlates to altering the undesirable gene combination as in instant claim 1.
- Configuration specified by each chromosome is evaluated, and "score" is assigned to each chromosome (5), as in instant claim 1.
- Genetic model for optimizing the power consumption of an integrated circuit (Claim 5), which correlates to at least one characteristic of an integrated circuit as in instant claim 9.
- System and computer-readable code for carrying out the above methods (Claims 8 and 9), as in instant claims 19, 23, and 24.

Anderson et al. do not specifically teach the limitation of a "altering the undesirable gene combinations to produce a set of corrected chromosomes", but do suggest steps of random mutations in a selected child chromosome may produce a child that is closer to the desired solution in some cases (8) and (Fig. 7, Step 710).

Haruki et al., as previously stated above, teach methods, computer code, and a system using a genetic algorithm and proximity correction to increase chromosome fitness.

Thus it would have been obvious to someone of ordinary skill in the art at the time of the instant invention to practice the invention of Anderson et al. with the chromosome correction algorithms as taught by Haruki et al., where the motivation would have been increased system optimization by reducing processing time (Haruki et al., (9)).

**CONCLUSION**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pablo Whaley whose telephone number is (571)272-4425. The examiner can normally be reached on 9:30am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin Marschel can be reached on (571)272-0718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**MARJORIE A. MORAN**  
**PRIMARY EXAMINER**

*Marjorie A. Moran*  
1/26/04